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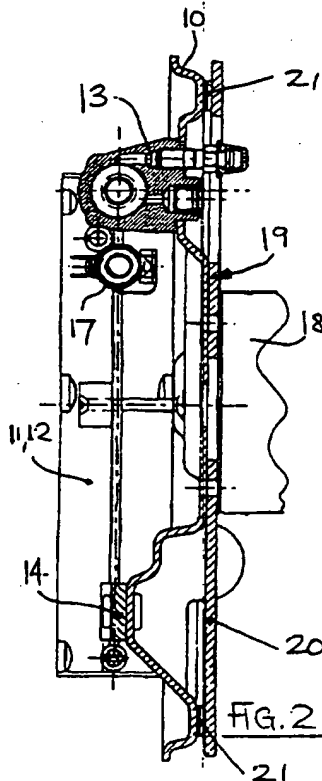
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(54) Abstract Title

Damping backplate vibration in a drum brake

(57) A drum brake backplate assembly including a drum brake backplate 10 for the support of brake shoes 11,12 and brake shoe actuators 13 (15 Fig. 1), and a backplate damper 19 for support between the backplate and an associated vehicle axle 18. The damper including a support member 20 on which one or more pads 21 of vibration isolating material are mounted which contact the backplate to damp backplate vibration.



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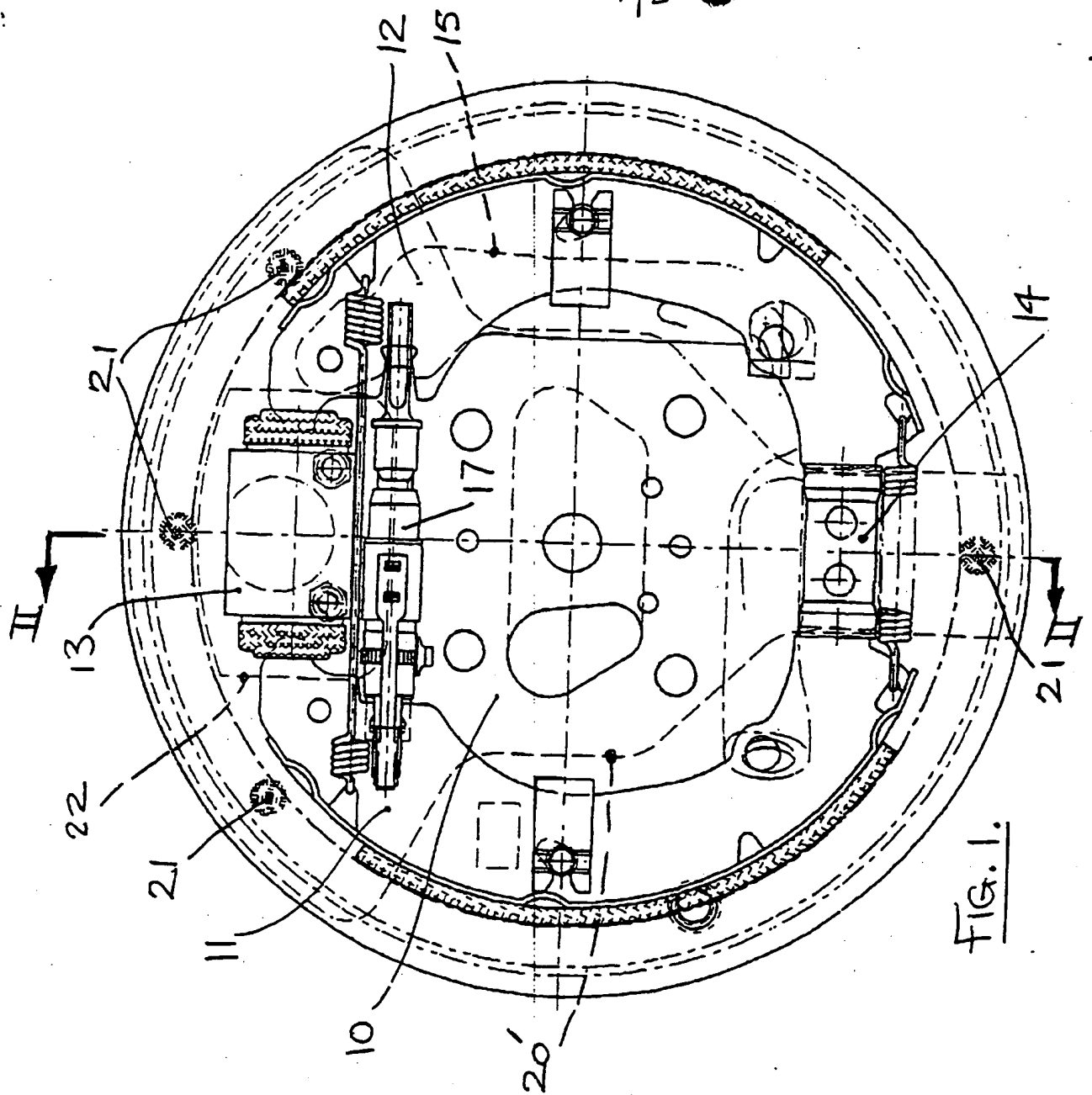


FIG. 1.

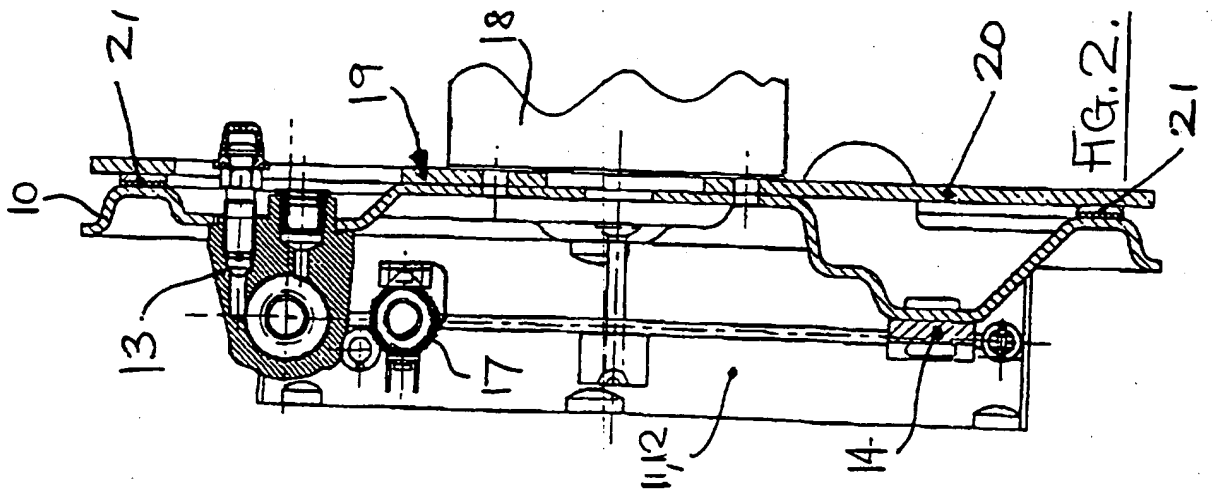


FIG. 2.

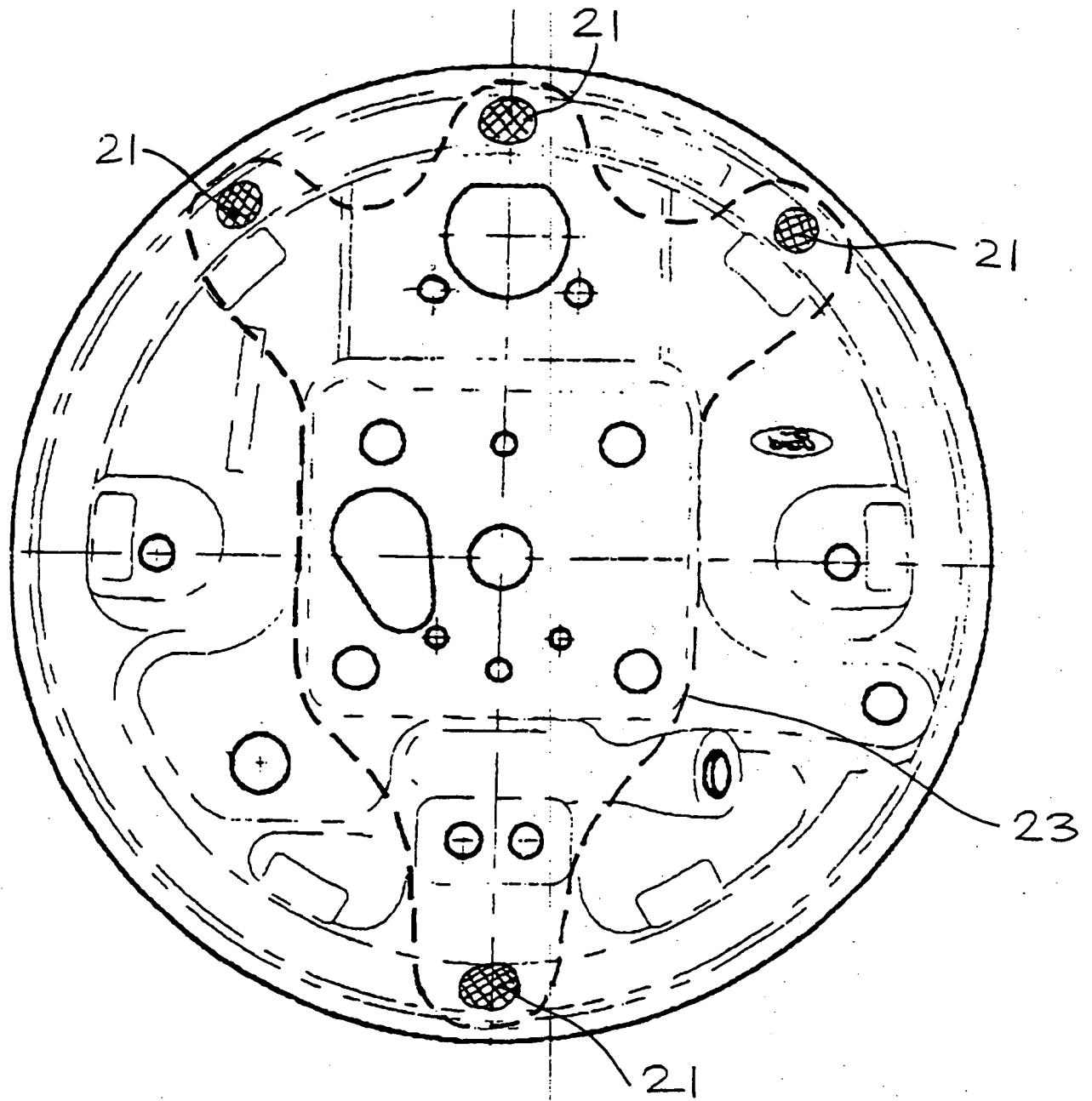


FIG. 3.

DRUM BRAKES

This invention relates to drum brakes and in particular to arrangements for damping vibrations which occur in drum brakes during application of the brakes.

When drum brakes are applied, the shoes may vibrate against the associated brake drum and this in turn causes vibration of the backplate of the brake. This vibration is then communicated to the vehicle suspension on which the brake is mounted and is therefore transmitted to the interior of the vehicle to the annoyance of the vehicle occupants.

It is an object of the present invention to provide an arrangement for at least partially mitigating the above vibration problem.

Thus according to the present invention there is provided a drum brake backplate assembly comprising a drum brake backplate for the support of brake shoe means and brake shoe actuating means, and a backplate damper for support between the backplate and an associated vehicle axle, the damper including one or more pads of vibration isolating material which contact the backplate to damp vibration therein.

The invention also provides a damper for a drum brake backplate comprising a support member with apertures for attachment to an associated vehicle axle between the axle and the associated backplate, and one or more pads of vibration isolating material for contact with the backplate to damp vibration therein.

The damper may include a plurality of pads spaced to contact the associated backplate at circumferentially spaced locations. The support member may be in the form of a disc or may have a plurality of radially extending fingers each finger carrying a pad of vibration isolating material adjacent its radially outer end.

Typically elastomeric/rubber material is used for the contact pads.

One embodiment of the present invention will now be described, by way of example only, with reference to the accompanying drawings in which :-

Figure 1 shows a side view of a drum brake assembly according to the present invention;

Figure 2 is a section on the line II - II of figure 1, and

Figure 3 shows details of an alternative form of backplate damper.

Referring to the accompanying drawings the drum brake comprises a backplate 10 on which a pair of brake shoes 11 and 12 are mounted. The brake shoes are expanded into contact with an associated brake drum (not shown) in a conventional manner by an hydraulic slave cylinder 13 and react against the normal abutment 14. A hand brake operating lever 15 is provided which operates between the shoes in the normal manner and which is operated by a cable (not shown). An automatic brake shoe-clearance adjusting device 17 is also provided which acts between the brake shoes 11 and 12. Details of this adjustment device, if required, can be found in the Applicant's European patents nos. 0388057 and 0538909.

The structural details of the brake other than the damper 19, described below, do not form part of the present invention which is applicable to any form of backplate mounted drum brake.

In accordance with the present invention the drum brake is mounted on an associated vehicle axle 18 via its backplate 10 with a backplate damper 19 sandwiched between the axle and the backplate. This damper comprises a flat metal sheet 20 on which pads 21 of rubber vibration isolating material are mounted at circumferentially spaced locations. As can be seen from figure 2, these rubber pads contact the back surface of the backplate and in doing so damp out any vibrations induced in the back plate as a result of the application of the brake shoes to the associated drum.

Although in the embodiment shown the sheet 20 has a perimeter denoted at 20' in Figure 1 with a cut-out 22 for slave cylinder 13, this sheet could comprise a complete disc or could comprise a plurality of fingers 23 shown in dotted detail in figure 3 each of the fingers supporting one of the pads 21 adjacent its radially outer end.

The number of circumferentially spaced pads provided may vary as may their circumferential and radial position depending on the dynamics of each particular vehicle installation.

For example in some installations it is only necessary to provide the pad 21 at the six o'clock position. The pad or pads may be made from any suitable vibration isolating material. Elastomeric materials are particularly suitable.

The damper 19 also acts as a spacer element to increase the track of the vehicle.

CLAIMS

1. A drum brake backplate assembly comprising a drum brake backplate for the support of brake shoe means and brake shoe actuating means, and a backplate damper for support between the backplate and an associated vehicle axle, the damper including one or more pads of vibration isolating material which contact the backplate to damp vibration therein.
2. An assembly according to claim 1 in which the backplate damper comprises a support member with apertures for attachment to the associated vehicle axle between the axle and the associated backplate, and one or more pads of vibration isolating material for contact with the backplate to damp vibration therein.
3. An assembly according to claim 2 in which the damper includes a plurality of pads spaced to contact the associated backplate at circumferentially spaced locations.
4. An assembly according to claim 2 or 3 in which the support member is in the form of a disc.
5. An assembly according to claim 2 or 3 in which the support member has a plurality of radially extending fingers each finger carrying a pad of vibration isolating material adjacent its radially outer end.
6. An assembly according to any one of claims 1 to 5 in which the contact pad or pads are of elastomeric/rubber material.
7. An assembly according to any one of claims 2 to 6 in which the support member is used as a spacer to increase the track of the associated vehicle.
8. A backplate damper for use in an assembly according to any one of claims 1 to 7 the damper comprising a support member with apertures for attachment to an associated

vehicle axle between the axle and the associated backplate, and one or more pads of vibration isolating material for contact with the backplate to damp vibration therein.

9. A drum brake backplate assembly or backplate damper constructed and arranged substantially as hereinbefore described with reference to and as shown in Figures 1 and 2 or 3 of the accompanying drawings.